# TECHNICAL REVIEW DOCUMENT for OPERATING PERMIT 960PJE140

to be issued to:

Coors Brewing Company
Golden Business Unit
McIntyre Commodities Transload
Brewing and Packaging Operations
Valley Support Services
Jefferson County
Source ID 0590006

Cathy Rhodes April, 2001

## I. PURPOSE:

This document will establish the basis for decisions made regarding the applicable requirements, emissions factors, monitoring plan and compliance status of emission units covered by the operating permit proposed for this site. It is designed for reference during the review of the proposed permit by the EPA, the public, and other interested parties. This narrative is intended only as an adjunct for the reviewer and has no legal standing. The conclusions made in this report are based on information provided in the original application submittal of February 15, 1996, subsequent supplemental technical submittals, and previous inspection reports.

Any revisions made to the underlying construction permits associated with this facility in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or an additional or revised Construction Permit.

#### II. SOURCE DESCRIPTION:

This facility produces malt beverages, and is classified under the Standard Industrial Code 2082. See discussion below for description of specific processes.

This facility is located in Golden, Jefferson County. The area is classified as attainment/maintenance for ozone, carbon monoxide, and particulate matter less than 10 microns in size (PM<sub>10</sub>) Under that classification, all SIP-approved requirements will

continue to apply in order to prevent backsliding under the provisions of Section 110(1) of the Federal Clean Air Act. There are no affected states within 50 miles of the facility. There are two Federal Class I areas within 100 kilometers of the facility: Rocky Mountain National Park, and Eagle's Nest National Wilderness Area.

Facility wide emissions (except not including Rocky Mountain Metal Container nor TriGen emissions) are as follows (tons/year):

<u>Pollutant</u>	<u>Actual</u>	<u>Potential</u>
Particulate Matter (PM)	37	46
PM <sub>10</sub>	20	28
Volatile Organic Compounds (VOC)	378	450
CO	7	58

Actual emissions are based on 1999 and 2000 data. Potential emissions are based on Operating Permit limits, which are based on 1999 and 2000 data.

This source does not emit major amounts of Hazardous Air Pollutants.

Total emissions from the Coors Brewery Complex, Rocky Mountain Metal Container, and TriGen Colorado Energy Corporation are as follows:

<u>Pollutant</u>	<u>Potential</u>	<u>Actual</u>
Particulate Matter (PM)	3573	74
$PM_{10}$	1256	56
Nitrogen Oxides (NO <sub>x</sub> )	3722	1612
Volatile Organic Compounds (VOC)	1058	547
CO	687	210
Sulfur Dioxide (SO <sub>2</sub> )	7223	2832

Under a February 1994 Settlement Agreement between Coors and the Division, Coors agreed to seek and obtain final construction permits for sources which had previously not been issued Construction Permits, and for which Coors made application in December 1993. The agreement allowed Coors to continue to operate these sources without permits until the permits were issued. Construction Permit 99JE0595 was recently issued for new bottle lines. This Operating Permit is being processed as a combined Construction/Operating Permit and therefore replaces and supersedes all previous permits that were in process for the Brewery, the McIntyre facility, the Valley Support Complex and Byproducts handling.

The Operating Permit contains a permit cap. Under the cap, Coors is able to "move" actual emissions from all equipment existing at the facility at their discretion, provided the permit

limits are not exceeded, and all other existing applicable requirements are met. Colorado Regulation No. 3, Part A, IV.C provides for permit caps.

The permittee requested a buffer equal to the PSD significant levels, so that emissions could increase at the facility up to the PSD significant levels without undergoing Construction Permit review. This Operating Permit does not include the PSD buffer. The sources covered by this permit, as well as the can manufacturing facility (Rocky Mountain Metal Container) and TriGen Colorado Energy Corporation, are considered to be a single source for purposes of PSD review. If a particular project results in a significant emission increase, a source may net out of PSD review if emission reductions occur at other units within the facility. Under the netting calculation, contemporaneous emission increases and decreases at the brewery, Rocky Mountain Metal Container, and TriGen must be tracked and summed to determine if PSD requirements are triggered. Inclusion of significant level buffers in this Operating permit would in effect allow for "pre-netting" out of PSD. The Colorado Regulations do not allow for pre-netting. In addition, inclusion of the buffers would make future netting calculations difficult. Coors would need to identify the sources associated with this increase. If the sources were identified, then the cap may be able to be increased. The permittee has not identified specific sources/projects that would be associated with the buffer increase, therefore the buffers are not included.

Note that some VOC emissions from the brewery are sent to the Tri-Gen power plant for destruction. The Coors Brewery complex, Rocky Mountain Metal Container, and the Tri-Gen plant are considered to be a single source for PSD purposes.

## II. New Equipment Flexibility

Coors requested that they be allowed to replace and add equipment under the provisions of this permit. The Division has determined that the Colorado Regulations do not allow replacement or addition of new equipment without prior review under the new source review regulations. This operating permit does provide some flexibility for addition of new equipment, to the extent the regulations provide for such flexibility.

This source is a major source for purposes of PSD review. The Division believes it is necessary to review new equipment to ensure PSD requirements are not triggered, and to ensure that the requirements of Colorado Regulation No. 3 are met. The plant wide limits require that existing activities covered by the permits comply with the overall limits as demonstrated by the recordkeeping and emission calculation requirements which are included as an Appendix of the operating permit. The permit does not cover new equipment which may be brought into the facility at a later date. The permit does not allow new equipment to be installed without Division review even though the plant wide limits are not exceeded. The Division will review any proposed emission change from new or modified equipment for construction permit applicability. If the proposed change in itself is significant the Division will then look at associated contemporaneous changes to determine

if a significant net emission increase has occurred. In this manner Coors can internally net out of PSD review. This situation exists regardless of whether a plant wide limit is used. Tracking emission changes at Rocky Mountain Metal Container and TriGen must also occur in conjunction with tracking changes at the sources covered under this Operating Permit.

Coors is required to undergo all necessary pre-construction review procedures through the construction permit, combined construction/operating permit, or operating permit modification procedures before replacing or reconstructing existing equipment, or adding new equipment. Under the minor modification procedures for operating permits, Coors can add new equipment with Potential to Emit (PTE) up to the PSD significance levels (40 TPY for VOC[s]). The minor modification procedures allow Coors to implement the change as soon as a complete modification application is received, prior to a revised operating permit being issued.

## III. "Operating Plan"

Regulation No. 3, Part C and 40 CFR Part 70 require the Operating Permit to contain specific procedures and methods for demonstrating and monitoring compliance. Coors submitted an "Operating Plan" which sets forth the materials for which quantities will be recorded, and the procedures for estimating emissions. This document is included as an Appendix to the Operating Permit. The specific conditions in the Operating Permit reference the most recent Division-approved Operating Plan. The permit provides that this Plan may be updated as Coors gains additional knowledge with regard to sources at the facility, or as the Division and/or Coors deem necessary to ensure compliance. (Note: The Operating Plan indicates that quantities of materials will be recorded on an annual basis. The Operating Permit requires records based on 4 week blocks (see discussion under Short Term Limits, below).

Regarding emission calculation procedures, AP-42 factors, or Coors' knowledge regarding emissions, may change based on new or improved data. A logical concern is what happens if the use of the new emission factor or calculation procedure results in the source being out of compliance with a permit limit. For this operating permit, the emission calculation procedures contained in the Plan are considered to be fixed until changed through the proper procedures. This does not include obvious factors dependent of the fuel sulfur content or heat content that can not be fixed and will vary with the test results. It is the responsibility of the permittee to be aware of changes in the factors and procedures and to notify the Division in writing of impacts on the permit requirements when there is a change in factors or procedures. Annual calculation of emissions for APEN update purposes is an opportune time for permittees to review emission factors. For changes regarding emission calculation procedures or factors, the Division will work with the permittee to address the situation.

The Division will review for approval any future proposed changes to the Plan, and the changes will be processed through the applicable permit modification procedures (administrative, minor, or significant modification). This will ensure that any significant modifications to the compliance demonstration procedures will undergo public review.

Methods for monitoring compliance with applicable requirements are listed in the Operating Permit. RACT for VOC emissions must be in place at all times, and may not be relaxed, even under the facility-wide cap.

#### IV. EMISSION SOURCES

The following sources are specifically regulated under terms and conditions of the Operating Permit for this site.

#### P110 - MCINTYRE COMMODITIES TRANSLOAD

The McIntyre Commodities Transload Facility is a grain receiving, handling, and storage facility. Barley and rice are received at McIntyre in railcars. The grain is then unloaded and transferred to the silos for storage. As brewing production requires barley and/or rice, the grain is removed from storage and loaded into Coors railcars to be transported to the Brewery Complex. A truck loadout at the McIntyre facility is available to loadout dust from the baghouses for transport offsite. All grain handling processes are controlled by baghouses. Additionally, a grain vacuum system with a baghouse controls emissions generated by general housekeeping activities.

## **BREWING AND PACKAGING OPERATIONS**

This facility includes emission units associated with grain handling (except for the McIntyre Commodities Transload facility, which is discussed above), brewing, and packaging operations of the Coors Brewing Company Golden business Unit. Grains are received, handled, and stored. Barley is malted to prepare it for use in the brewing process. The grains, malt, rice, and starch are milled into flour and mixed into brew-size batches. The grains are then moved to the brewhouse where they are combined with water and heated to produce a fermentable water solution of sugars. The grains and hops are then removed from the liquid extract. The grains and hops are handled as spent materials and the liquid extract is further processed. Hops are added to the liquid extract and the mixture is boiled for a prolonged period. At this point in the process, the liquid extract is called [wort.] After brewing is complete, the wort is clarified, cooled, and sent to fermenting.

Fermenting is the process in which the sugars in the wort are converted to alcohol by yeast. Following fermentation, the yeast is removed and handled as spent material, and the beer is aged. Aging is the continuation of the fermentation process. Following aging, the beer is conditioned. A portion of the beer produced in Golden is shipped to another Coors facility for conditioning. This beer is loaded into railcars through an operation referred to as the Golden Beer Loadout. The beer remaining in Golden is sent to be conditioned on site. Conditioning is a process of filtering and blending.

Following conditioning, the beer is packaged into cans, bottles, or kegs. Packaging includes preparing the containers to be filled, labeling the containers and secondary packaging, the actual filling of the containers, and handling improperly filled containers.

Spent grains from the brewing process are dried and made into pellets or wet-loaded and shipped off-site. The spent yeast for fermentation is processed in an operation referred to as yeast separation and lysing and then also dried.

These processes are described in more detail below.

## P140 - Starch and Rice Handling

Brewer's rice and refined starch are used as adjuncts in the brewing process. Along with malt, these adjuncts are cooked to produce a fermentable sugar solution. Starch is delivered in bulk loaded railcars and trucks, and then pneumatically transferred to storage tanks. Baghouses are used to separate the starch from the conveying air. A fluidizer system is used in the tanks to make the bulk starch more fluid. Bin vents on the tanks capture dust from the fluidizing system. From the tanks the starch is pneumatically conveyed to starch bins in the north and south brew complexes. Baghouses remove the starch from the airstream. From that point, handling of the starch is covered under Raw Materials Milling and Batching (see below).

Rice is delivered in railcars and pneumatically transferred to transfer hoppers. A baghouse is used to separate the rice from the conveying air. The rice is then pneumatically conveyed into rice storage bins located in the north and south brew complexes. Cyclones are used to remove the rice from the airstream. From that point, the rice handling is covered under Raw Materials Milling and Batching (see below).

## P120 - Malthouse Grain Handling

Barley is received in railcars from the silos at McIntyre. It is unloaded at the unloading station at Malthouse 4, and elevated to aspirators in Malthouse 4 for cleaning. The barley is mixed with water and pumped to steeping areas, where the malting process begins. After the malting process, the malt is conveyed back to Malthouse 4 for cleaning. The malt is then loaded into silos for storage. In addition, an outside facility produces malt from barley for Coors. The malt receiving system receives this malt and loads it into the silos for storage. After the malt has aged in the silos, it is blended. This involves removing a small amount of malt from each silo and storing the mixture in a blended malt silo. The blended malt is removed from the silo as needed in the brewery process. Some of the finished malt is loaded into railcars for use at other locations. There are several vacuum cleaning systems located throughout the Malthouses which are also included under this process.

#### P130 - Malting

Malting is the preparation of barley for use in the brewing process. Conversion of barley to barely malt takes three major steps: steeping, germinating, and kilning. Steeping of barley

occurs in large tanks where water is added to soak or [steep] the barely to allow it to begin to sprout. Germination takes place in germinating compartments which are kept within tightly controlled humidity and temperature ranges. The purpose of kilning is to stop growth of the barley kernels, to remove moisture from the malt and to develop malt aroma, flavor and color. Kilning occurs in steam-heated kilns. (The steam is purchased from TriGen). The kilned malt is cooled with outside air before it is transferred to storage silos.

## P150 - Raw Materials Milling and Batching

Raw materials are milled into a flour, and mixed into brew-sized batches. The raw materials are mixed into either malt flour or cereal. Whole malt is stored in bins. From there, enough malt for one brew is weighed and milled. The milled malt is stored in malt flour batch bins until it is needed in the brewhouse. When malt is needed, it goes through a pre-masher where it is mixed with water and transferred to the mash-in kettle. Cereal is a mixture of milled malt, milled rice, and starch. Rice for one brew is dropped from the storage bin, weighed, milled, and transferred to a cereal batch bin. Starch does not require grinding; it is weighed and transferred to the cereal bin. Malt comes from the whole malt bins, into a separate grinder, called the grits mill. The grit malt is then transferred to the cereal bin. Like malt flour, the cereal is transferred as needed through a pre-masher, and into the cereal cooker. There are two separate lines for the milling and batching system: one for the south brew complex and one for the north brew complex. Each side is slightly different in its [] specific flow. Roller mills are used for all grinding, with the exception of brewline H in the north brew complex, where a hammer mill is at times used. Each side is aspirated to a single baghouse, which keeps the bins, scales, and mills under negative pressure. The hammer mill is aspirated separately to its own baghouse.

#### P230 - Brewhouse

The function of the brewhouse is to make a water solution of sugars which can be fermented into beer. Ground malt, rice, and starch are cooked in water to convert the starches into sugars This cooking is performed in copper vessels called cereal mash-in kettles, cereal cookers, and mash tuns. Once the sugars are leached out, the solids are filtered out and the liquid, called extract, is sent to the copper brew kettles. Hops are added to the mixture and the liquid, known as wort after the addition of hops, is boiled for a prolonged period. After brewing is complete the hops are strained out and the wort is clarified, cooled, and sent to fermenting. Emissions come from the cooking and boiling phases. The steam generated carries with it some of the organics and particulates from the process. In addition, emissions result from the various vessels containing grain and water and brew kettles.

## P160 - Spent Grain Drying System

Grains are malted and ground for use in brewing. They are then boiled together with water. The grain that is filtered out of this stream is called spent grain. Hops are added to the liquid fraction, which is then called [wort.] Spent hops are the hops that are removed from the wort and sent to the spent grain drying system. The drying system consists of

noncontact steam-heated dryers. Feedrates of materials to the drying system are directly linked to the volume of beer produced. The dryers run continuously, however, because beer is produced in batches, the feedrate to the drying system is not constant. Stack washers remove PM emissions from the dryer exhausts. Spent grains not handled in the Spent Grain Drying System are loaded out wet and shipped off-site.

## **P240 - Extract Grain Separation**

During the brewing process, the grains must be separated from the liquid extract. After processing in the mash tuns, the grain-extract mixture is separated in plate and frame type filters. The liquid extract is sent to the brewkettles, and the grain is dropped into an open trough and augured out. In the south brew complex, brewlines A, B, C, and D, the wet grain then goes to a variable pitch extrusion press. The resulting material goes to the grain dryers or is loaded out wet and shipped off-site. The liquid is processed through a centrifuge to further separate grain from usable extract. The liquid is reused in the brewing process, and the grains go to the grain dryers. In the north brew complex, brewlines E, F, G and H, the grain goes directly from the filter press to a centrifuge to reclaim additional extract. From the centrifuge, the grain is dried in the spent grain dryers or loaded out wet and shipped off-site. Emissions result from the wet grain as the filters are opened and emptied, and from the presses and centrifuges.

## P250 - Wort Processing

This system removes coagulated proteins from the wort and cools the wort before fermentation. After the hot wort leaves the brewkettle, it is sent to a whirlpool where the wort is injected into the side of the tank. Proteins (called trub) are settled out. The liquid is allowed to rest in the tank, and then is drained to a wort cooler. Closed plate coolers are not open to the atmosphere. In the open plate coolers, the wort flows over plates filled with cooling liquid. Air is pulled in, filtered, and blown counter currently over the wort. The air is then released to atmosphere. The cooled wort is sent to fermentation. The coagulated proteins in the vessel bottom are drained to a trub storage vessel. The trub is then sent back to the brewhouse for reuse. Trub solids are filtered and processed along with the spent grains.

#### P210 - Fermenting

In this process, fermentable sugars in the wort are converted to alcohol by yeast. Cooled wort is transferred from brewing to fermenting. The yeast is added to the wort in a process known as pitching, before addition to the fermenter tanks. A pure  $CO_2$  atmosphere forms in the tanks is diverted to the TriGen Utility boilers for combustion. The vented  $CO_2$  carries some VOCs with it.  $CO_2$  is collected and reused in the aging, finishing, and packaging operations. After the beer has been drained (dropped) from the fermenting tank, yeast remains in the tank bottom and it must be pushed out of the tank manually. The tanks are ventilated in order to ensure that safe levels of oxygen exist in the confined space. This is done by opening a valve to allow fresh air from the building to enter , and putting the tank

on the exhaust system. This system pulls air through the tank and vents the gas to the boilers for destruction of VOCs.

## P320 - Cellar 13 - Yeast Separation and Lysing

At the completion of the fermentation process, beer is decanted from the fermenting tank and a beer/yeast slurry remains in the bottom. This slurry is handled in Cellar 13 by a process referred to as yeast separation and lysing. Slurry is directed to feed tanks. From the feed tanks, the slurry goes through high pressure chamber filter presses to recover the beer. The beer goes to storage tanks and is returned to the brewing process step. The yeast cake drops into hoppers, where it is heated and circulated through a mixed, heated storage tank. Heating the yeast makes it pumpable, and also serves to lyse the yeast. Lysing is the process of killing the yeast by rupturing the cell wall, thus stopping the yeast action, such as foaming. Lysed yeast is transferred to Cellar 9. All tanks are vented to the boilers (VOC duct). In addition, fugitive emissions from the filters are captured and vented to the boilers (VOC duct).

## P220 - Golden Beer Loadout (GBL)

The GBL receives empty railcars from other Coors facilities to be cleaned and refilled with beer. Empty cars are received, still filled with a  $CO_2$  and beer mixture. The cars are rinsed with a deoxygenated water solution. The water and beer residue is drained to the process waste treatment plant; the  $CO_2$  is vented through the  $CO_2$  vent system (blowdown). This  $CO_2$  contains VOCs. After the cars are cleaned, they are filled with high gravity beer. This process also includes the storage tanks in Cellar 24 (Aging) that store the beer prior to loadout to railcars, and a wastewater storage tank located in Cellar 24.

## P260 - Aging

Aging is the continuation of fermentation. Beer is transferred from fermenting, with a small amount of yeast in suspension. During aging, the aging vessels are sealed under CO<sub>2</sub>. Emissions occur after the beer has been drained from the aging vessel. The vessels are ventilated in order to provide safe levels of oxygen for the entry into the vessels. Next, valves are opened and an exhaust system pulls air in from the corridor through the vessel, and vents the gases outside. The CO<sub>2</sub> which is vented in this manner contains some ethanol due to its contact with beer

#### P270 - Conditioning

Aged beer is filtered and blended into the final product. Beer is then stored in tanks prior to being packaged. Emissions result from the Fill On Vent, which occurs each time a clean empty tank is filled with beer. As the tank is filled, a  $CO_2$  blanket is provided. The air above the blanket is then evacuated from the tank. Emissions also result from  $CO_2$  evacuation, which occurs after the tank has been emptied. The evacuation process draws outside air through the tank to atmosphere.

#### P310 - Cellar 9 - Spent Materials Handling

Cellar 9 is a multi-use cellar. Cellar 9 consists of three floors of tanks only, and one floor of tanks and process equipment. Tanks are designated for beer production, spent materials handling, and water. Floor A, the lowest floor, is used for conditioning special beers and emissions are insignificant. Floor B has tanks which hold water and water/spent materials mixtures collected from the Waste Beer Condenser and the Yeast Drying Plant. Spent materials tanks are vented to the boilers. Floor C has tanks which store spent yeast collected from Cellar 13, and the Aging area. Other C floor tanks receive and hold waste beer collected from Packaging and Defilling areas. These tanks also vent to the boilers. Cellar 9 also includes a truck loadout.

# P330 - Yeast Drying Plant (YDP)

The YDP processes spent yeast from the brewing process into dried yeast suitable for use in animal feed. Yeast/beer slurry from fermenting and aging is stored in Cellar 9. Various yeast streams are mixed to provide a consistent feed to the YDP. This stream is processed through an evaporator/condenser to thicken the stream. The yeast is then processed through a spray dryer. The yeast is blown through an atomizer into a heated drying chamber. The yeast is separated from the air stream using a cyclone and a wet scrubber. The air is then reconditioned and recirculated through the dryer, except for a balance air stream which is vented to atmosphere. The dried yeast is stored in storage silos, until it is packaged. The yeast is pneumatically conveyed to the silos, and the conveying air and displacement air go through a cyclone and then back to the scrubber. The yeast is packaged into bags, or bulk truck loadouts for shipment. Yeast is transferred out of the silos through an enclosed auger, into a small hopper. Emission from this transfer are routed to a cyclone and then to the baghouse which serves the yeast packaging area. The packaging room exhaust is also ducted to a baghouse. A central vacuum sweeping system serves the packaging room and the yeast conveyor areas. Due to breakdowns of the bag placer, filler, and sealer, some packaged bags are not shipped and the yeast is reclaimed. The yeast is placed in a reclaim hopper and then transferred to the silo by means of a conveying cyclone; emissions are routed to a baghouse.

## P170 - Dry Byproduct Pellet System

Dry materials from the spent grain dryers, sprouts from the malt kilns, and grain dust collected by the dust collection systems are combined and processed to make animal feed pellets. The pellet system is primarily a mixing process and is similar to an animal feed mill. The materials mentioned above are combined and mixed with beer syrup or water, and steam. Pellet mills are used to process the grain mixture into feed pellets. The pellet making process is an extrusion process in which grain mixture is forced through dyes. The pellets then go to vertical pellet coolers and then to storage bins. They are bulk-loaded into trucks or railcars for shipment. The equipment used for materials handling is covered and vented to baghouses which also handle dust from other grain handling operations within the malthouses. The pellet coolers are each equipped with a dedicated baghouse.

## **Packaging**

# P410 - Bottle Filling

Bulk beer comes from tanks in Conditioning. During the Bottle Filling operation the beer spillage is minimal. This spillage of product releases VOCs and  $CO_2$  into the room air. Product spilled during production is drained to the Process Wastewater Treatment Plant (PWTP). Product that is milked (system purge during product changes) is collected in the Waste Beer System. The filler and closure machines are enclosed in filler rooms in which aseptic air (air filtered with a HEPA filter) is forced into the rooms. The apportionment of aseptic air insures that each filler room is pressurized and non-filtered air is not allowed to enter and come in contact with the product. The aseptic air provides ventilation for the filler machine operators and vaporizes a percentage of the spilled beer. The filling rooms are sources of VOC emissions. In addition, the  $CO_2$  stream containing VOCs is vented to the atmosphere.

# P495 - Bottle Label Glue Application

Glue machines glue product labels to the bottles. VOCs are emitted as the glue cures.

## P420 - Can Filling

Beer comes from tanks in Conditioning. Beer spilled during can filling is collected on the floor of the filling room and drained to a waste-beer tank, then pumped to Cellar 9. The filler rooms are sources of VOC emissions. In addition, the CO<sub>2</sub> stream containing VOCs is vented to the atmosphere.

## P425 - Keg Filling

Bulk beer is packaged into kegs and the containers are sealed. During filling operations when beer and  $CO_2$  are in contact, some of the alcohol from the beer is transferred to the gas. As the container is filled with beer, the  $CO_2$  containing VOCs is forced out of the container and vented to the atmosphere.

## P430 - Packaging Bottle Defill

This process removes beer from bottles that have either been returned from the distributing warehouse or are rejects from the beer filling operations. Full containers are dumped into a hopper and fed into the bottle crusher unit for crushing to evacuate the contained beer. After crushing, the waste beer and broken glass are passed over a screen for separation. The waste beer is sent to a storage tank and then pumped to Cellar 9. The glass continues down a chute to a dump truck trailer, and is hauled to the Glass Plant for recycling. The waste beer storage tank is utilized by both packaging defill operations (cans and bottles), as well as other areas, including the fillers and government cellar.

#### P440 - Packaging Can Defill

The can defill operation removes beer from cans that have either been returned from distributing warehouses or are rejects from beer filling operations. Full containers are

crushed to evacuate the contained beer. The waste beer is collected in a storage tank and then pumped to Cellar 9. A pneumatic conveyor transfers the crushed cans. A cyclone is used for removal of the cans from the air stream. The cyclone also receives and separates uncrushed, empty cans that were never filled. VOCs are pulled in from room air containing VOCs, and VOC emissions also come from air stream stripping of VOCs from the beer remaining in the crushed cans. VOC emissions from the cyclone are emitted to atmosphere.

#### P450 - Transload Defill

The can defill operation at Transload removes beer from cans that are returned or rejected. Full cans are crushed to remove the beer. The waste beer is collected in a sump which is pumped to a storage tank (insignificant VOC emissions). When the tank is full, the beer is pumped into a tanker truck for transport to Cellar 9. The crushed cans are belt conveyed to a baler, and then transported for recycling. As crushed cans are transported from the defill unit, a small quantity of beer remaining in the cans drains to the floor, resulting in fugitive VOC emissions.

#### P480 - Air Conveyor Cleaning

Low or non-VOC cleaners are used to remove foreign matter buildup on the air port openings of the air conveyors throughout the brewery.

## P470 - Packaging Videojets

The videojets are noncontact ink jet printers. They are used to label cans, bottles, and secondary packages. VOC emissions result from the organic compounds in the inks.

#### VALLEY SUPPORT SERVICES

The Coors Brewing Company, Golden Business Unit contains buildings and structures for manufacturing and office use, paved and unpaved roads, parking lots, and aggregate storage piles. The Valley Support Services portion of the Golden Business Unit includes the processes described below.

## P510 - General Wastewater Treatment Plant (GWTP)

The GWTP treats sanitary and other sewage from the brewery as well as other Coors facilities and the city of Golden.

## P520 - Process Wastewater Treatment Plant (PWTP)

The PWTP treats process wastewater from numerous processes at the brewery. The PWTP is equipped with three iron sponges to remove odors. The post-aeration basin vents to a biological dirt bed to remove H<sub>2</sub>S from the exhaust stream.

#### P530 - Sludge Processing Plant

Sludge from the PWTP is collected and pumped to storage tanks at the Sludge Processing Plant. The sludge is dewatered by use of belt presses or, occasionally, by the use of

decanter type centrifuges. The liquid from the dewatering process is returned to the PWTP, and the thickened sludge is sent for composting or disposal.

#### P540 - Water Treatment Plant

Ozone is used to treat water used to produce beer and used to supply other facility water requirements. Ozone emissions result from this process.

## P610 - C1 Lake Cooling Tower

The C1 Lake Cooling Tower is a source of PM emissions.

#### P620 - CO<sub>2</sub> Purification

This system purifies CO<sub>2</sub> from fermenting operations in Cellars 13 and 8 for use in other Brewery processes. Each equipment train contains a water scrubber and a carbon adsorption tower for purification and a water cooled condenser for control of VOCs from carbon regeneration. The main purpose of the scrubber is to remove VOCs entrained in the CO<sub>2</sub>. The scrubber water is disposed of in the Process Wastewater Treatment Plant. When the carbon from the carbon adsorption tower is regenerated, steam containing VOCs is emitted and controlled by the condenser. The condensate is disposed of in the PWTP.

## T200 - Gasoline Dispensing Island

The island consists of two underground 15,000 gallon unleaded gasoline storage tanks, two fuel delivery pumps, and Phase I and Phase II vapor recovery systems.

## Facility Wide Applicable Requirements -

Emission Limits - Emission limits are based on actual emissions for 1994 and 1995, except for those sources for which the Settlement Agreement required Coors to reduce VOC emissions. VOC emissions for these sources are based on 1996 and 1997 actual emissions, after the required controls were applied.

## Colorado Regulation No. 1

- Opacity shall not exceed 20% during normal operations (Section II.A.1particulate matter emitting sources only)
- Opacity shall not exceed 30%, for a period or periods aggregating more than six (6) minutes in any sixty (60) minute period, during fire building, cleaning of fire boxes, soot blowing, start-up, process modifications, or adjustment of control equipment (Section II.A.4)
- Particulate emissions shall not exceed a lbs/hour limit, using an equation based on process weight rate (Section III.C.1 - particulate matter emitting sources only)
- Restricts the use of fuel oil as backup fuel during certain months (Section VIII)

Colorado Regulation No. 6, Part B (**State-Only** requirements - particulate matter emitting sources constructed or modified after January 30, 1979 only)

- Opacity shall not exceed 20% (III.C.3)
- PM emissions shall not exceed a lb/hour limit, using equations based on the process weight rate (III.C.2)

Colorado Regulation No. 7, Reasonably Available Control Technology

Regulation No. 7 sets forth specific requirements for minimizing VOC emissions from storage tanks and gasoline dispensing activities. For other VOC emitting sources, a case-by-case RACT determination was previously made during the Settlement Agreement process and the RACT requirements are included in this Operating Permit. Previous RACT determinations did not specifically address fugitive VOC emissions. RACT for fugitive VOC emissions is incorporated directly into this operating permit.

# **Applicable Requirements for Specific Activities**

Fermenting - The permittee applied for an increase in ink use at the video jet process, and for addition of new bottle lines. In order to offset the resulting emissions, and to net out of major new source review requirements, fermenting emissions are ducted to the TriGen boilers for destruction. The requirement to duct fermenting emissions to the boilers is included in this operating permit to make the emission decrease enforceable.

VOC Reduction Projects - The Settlement Agreement requires the permittee to reduce VOC emissions from this facility by 69.5 tons per year, by implementing VOC Reduction Projects. The permit sets forth this requirement, indicates how the reduction was achieved, and sets forth appropriate monitoring procedures to make the reduction enforceable.

## **Streamlining of Applicable Requirements**

The Regulation No. 1 and 6 process weight PM emission limits are streamlined out because the facility-wide permit limits are more stringent.

**Emission Factors** - Emissions for various sources are based on the most recent EPA AP-42 factors and source testing. Emission from water treatment plants are estimated using the Bay Area Sewage Toxics Emissions (BASTE) modeling system.

**Monitoring Plan** - For non-PM emitting sources, compliance with the opacity limits will be assumed. For PM emitting sources, weekly visible emission observations and semiannual

and annual Method 9 opacity readings are required. In addition, proper operation and maintenance of the baghouse control systems is required. Compliance with facility wide emission limits are determined using the recordkeeping and emission calculation procedures set forth in the Operating Plan. Control equipment operation and maintenance procedures, and good operating practices and prevention pollution measures are required to be in written format. The Annual Certification will include a statement that fermenting, Cellar 13, and Cellar 9 emissions are vented to the TriGen boilers for destruction.

**Compliance Status** - The permittee certified compliance with all applicable requirements.

## V. Alternate Operating Scenarios

The Title V application did not include a request for any Alternate Operating Scenarios.

#### VI. Permit Shield

The permit application contained an extensive request for the permit shield. The Division reviewed the request and in the interest of brevity included those applicable requirements for which a person might assume the facility was subject, but is not. The permit does not list those for which the facility is obviously not subject.

#### VII. Short Term Limits

On April 16, 1998 the Colorado Air Quality Control Commission directed the Division to implement new procedures regarding the use of short term emission and production/throughput limits on Construction Permits. These procedures are being directly implemented in all operating permits that had not started their Public Comment period as of April 16, 1998. All short term emission and production/throughput limits that appeared in the construction permits associated with this facility that are not required by a specific State or Federal standard or by the above referenced Division procedures have been deleted and all annual emission and production/throughput limits converted to a rolling 12 month total. Note that, if applicable, appropriate modeling to demonstrate compliance with the National Ambient Air Quality Standards was conducted as part of the Construction Permit processing procedures. If required by this permit, portable monitoring results and/or EPA reference test method results will be multiplied by 8760 hours for comparison with annual emission limits unless there is a specific condition in the permit restricting hours of operation.

Coors operates this facility on a 28 day (4 week) basis, therefore, for this source, emissions will be calculated for every 4 week period and compliance with the annual facility-wide emission limit will be demonstrated on a rolling 13 - 4 week block basis. This requires the permittee to maintain records of material use and throughput on a 4 week basis, instead of the annual basis proposed in the submitted Operating Plan.

#### VIII. Accidental Release Program - 112(r)

The Title V application reports the facility is subject to the provisions of the Accidental Release Plan provisions of 112(r)(7) of the Clean Air Act.

## IX. Insignificant Activities

Emissions from insignificant activities are not included in the facility wide emissions limits. As stated in Colorado Regulation No. 3, Part C, E, insignificant activities and associated emissions can not trigger any applicable requirement, including PSD review requirements.

# X. Compliance Assurance Monitoring (CAM)

The requirements set forth in 40 CFR Part 64, as adopted by reference into Colorado Regulation No. 3, Part C, Section XIV, require emission points that use a control device to meet an emission limit or standard, and which have pre-controlled emissions equal to or greater than major source thresholds to submit a CAM plan. Sources for which a Title V application was deemed administratively complete prior to April 20, 1998 are not subject to the CAM requirements until renewal or if a significant permit modification is made that affects a large unit. The application for this facility was deemed complete prior to April 20, 1998, therefore the CAM provisions do not apply at this time.